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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/622,513	07/21/2003	Kenichi Fujita	030812	3785

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EXAMINER

RONESI, VICKEY M

ART UNIT	PAPER NUMBER
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1714

DATE MAILED: 12/06/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/622,513

Applicant(s)

FUJITA ET AL.

Examiner

Vickey Ronesi

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 October 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 12, 14 and 15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 12, 14 and 15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 10/3/2005 has been entered.
2. All outstanding rejections are withdrawn.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 12 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fisher (US 2002/0086926) in view of Wypych (*Handbook of Fillers*).

Fisher discloses an IR absorbing polyvinyl butyral composition comprising lanthanum hexaboride particles having a particle size less than 200 nm, preferably ranging from 5 to 200 nm (paragraph 0019), in an amount ranging from about 0.005 to about 0.1 wt % based on the entire composition (paragraph 0015) that is used as an interlayer in glass laminates (paragraph 0012). Note examples 1, 6, and 7 where LaB₆ has been calculated to be present in an amount of 0.01, 0.02, 0.03, and 0.04 parts by weight per 100 parts by weight polyvinyl butyral. Fisher further

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discloses that other polymers which are used to form interlayer sheets of glass laminated could be substituted for the preferred PVB (paragraph 0021).

Fisher does not disclose that its hexaboride is surface-treated with a silane, titanium, or zirconium compound as presently claimed; however, note that it is open to other suitable additives (paragraph 0025).

Wypych teaches that hydrophilic fillers do not easily combine with hydrophobic polymers and that by changing the filler's surface character from hydrophilic to hydrophobic with a silane compound increases the interaction between the filler and the polymer matrix thereby improving filler dispersion and rheological properties (page 312). Wypych also teaches the equivalency of using silicon, titanium, and zirconium compounds in surface-treating agents (page 320).

Therefore, given the teachings by Wypych regarding the benefits of surface-treating a hydrophilic filler with any one of silane, titanium, or zirconium compounds in polymeric compositions, it would have been obvious to one of ordinary skill in the art to appropriately surface-treat the hexaboride filler of Fisher with a hydrophobing agent to improve dispersion and rheological properties as taught by Wypych and thereby arrive at the presently cited claim.

4. Claims 12 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fisher (US 2002/0086926) in view of Wypych (*Handbook of Fillers*) and further in view of Hawley's (*Hawley's Condensed Chemical Dictionary, 13th Edition*).

The discussion with respect to Fisher and Wypych in paragraph 3 above is incorporated here by reference.

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While Fisher only discloses amounts of hexaboride of up to 0.1 wt %, it is considered that it would have been obvious to one of ordinary skill in the art to utilize a masterbatch which would necessarily contain a higher concentration of the hexaboride, including amounts like presently claimed, in order to improve the dispersion of the hexaboride in the final composition. Evidence to support the examiner's position is found in *Hawley's* which discloses that a previously prepared mixture composed of a base material and a high percentage of an ingredient that is critical to the product being manufactured is a masterbatch which permits uniform dispersion of very small amounts (less than 1% like the hexaboride in Fisher's composition) (pages 703-704).

5. Claims 12 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fisher (US 2002/0086926) in view of Wypych (*Handbook of Fillers*) and further in view of *Hawley's* (*Hawley's Condensed Chemical Dictionary, 13th Edition*) and Takeda et al (JP 2000-169765).

The discussion with respect to Fisher, Wypych, and *Hawley's* as set forth in paragraph 4 above is incorporated here by reference.

Fisher discloses the use of lanthanum hexaboride as an IR absorbing material; however, it does not disclose the use of other lanthanide hexaborides and calcium hexaboride as presently claimed.

Takeda et al discloses a sunlight-shielding coating solution that utilizes fine hexaboride particles to impart sunlight-shielding properties which include compounds XB_6 where X = La, Ce, Nd, Gd, Tb, Dy, Ho, Sm, Eu, Er, Tm, Yb, Lu, Sr, or Ca (abstract).

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In view of Takeda et al's recognition that lanthanum hexaboride and other lanthanide hexaborides and calcium hexaboride are equivalent and interchangeable, it would have been obvious to one of ordinary skill in the art to substitute lanthanide hexaboride with any of the hexaborides disclosed by Takeda et al and thereby arrive at the presently cited claims. Case law holds that the mere substitution of an equivalent (something equal in value or meaning, as taught by analogous prior art) is not an act of invention; where equivalency is known to the prior art, the substitution of one equivalent for another is not patentable. See *In re Ruff* 118 USPQ 343 (CCPA 1958).

6. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fisher (US 2002/0086926) in view of Wypych (*Handbook of Fillers*) and further in view of *Hawley's* (*Hawley's Condensed Chemical Dictionary, 13th Edition*) and Hall (EP 0 459 704).

The discussion with respect to Fisher, Wypych, Hawley's, and Takeda et al in paragraph 4 above is incorporated here by reference.

Fisher does not disclose thermoplastic resins as presently claimed; however, Fisher discloses that other polymers which are used to form interlayer sheets of glass laminated could be substituted for the preferred PVB.

Hall discloses an impact-resistant windshield for pressurized aircraft and teaches that polycarbonate energy-absorbing glass laminate interlayers provide improved impact properties at elevated temperatures than conventional energy-absorbing glass laminate interlayers such as polyvinylbutyral and polyurethane which only provide satisfactory performance at low and normal ambient temperatures (col. 1, lines 25-44).

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Given that Fisher is open to thermoplastic resins other than PVB and given that Hall teaches the benefit of polycarbonate interlayer in glass laminates, it would have been obvious to one of ordinary skill in the art to substitute the PVB of Fisher with polycarbonate resin and thereby arrive at the presently cited claim.

Response to Arguments

7. Applicant's arguments with respect to claims 12, 14, and 15 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Aruga et al (US 2003/0138637), which fails to qualify as prior art under any section of 35 USC 102, discloses a heat radiation block fluororesin film which contains a composition comprising 100 parts by weight (pbw) fluororesin (i.e., thermoplastic resin) and 0.01-1 pbw hexaboride that is hydrophobized with a silane compound (claim 2; paragraphs 0063, 0064, 0068, and 0069).

Contact Information

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Vickey Ronesi whose telephone number is (571) 272-2701. The examiner can normally be reached on Monday - Friday, 8:30 a.m. - 5:00 p.m.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on (571) 272-1119. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

11/29/2005

vr



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